

REMARKS

Claims 43-65, 69 and 71-74 are currently pending in this application. Claims 43-46, 56 and 85-86 have been amended. Claims 44, 66-68 and 70 have been cancelled. No new matter has been added. In view of these amendments and of the following remarks, Applicants believe that all the asserted rejections are in condition for withdrawal and all the claims are in condition for allowance.

The Examiner has acknowledged Election of Group I, claims 43-65, for further prosecution, and states that method claims 69 and 71-74, which recite DNA of SEQ ID NO: 13, will be rejoined with the elected claims as a matter of right if they are included in an Amendment in which they depend from or otherwise include all the limitations of the product claims. Claims 69 and 71-74 have been included herein and include all the limitations of the main product claim 43, thus claims 69 and 71-74 can be rejoined with elected claims 43-65.

The Examiner states that claims 44-46 and 85-86 recite "Fig. 12" instead of sequence ID Nos., and is requiring that "Fig. 12" be replaced with the appropriate SEQ ID NO. Accordingly, claims 44-46 and 85-86 now recite "SEQ ID NO. 13" instead of "Fig. 12."

Claims 43, 47-65 and 75-86 stand rejected under 35 U.S.C. 112, first paragraph, for purported lack of written description. The Examiner asserts that the specification only provides a single representative species from *Artemisia annua* of SEQ ID NO: 13, and that there is no function/activity relationship in the disclosed species to other species where sequences are conserved to establish a relationship among species in order to make a polypeptide having the synthase activity from any source. Claim 43 has been amended to recite that the isolated DNA sequence exhibits at least 70% homology to SEQ ID NO: 13 or the complementary strand thereof, thus establishing a relationship among different species from any source where such a sequence is conserved. Applicants submit that the specification provides adequate written description for claim 43 as amended, and for claims 47-65 and 75-86, which depend either directly or indirectly from claim 43.

Claims 43-45, 47-65 and 75-86 stand rejected under 35 U.S.C. 112, first paragraph, for purported lack of enablement. The Examiner asserts that although the specification provides guidance for making an isolated DNA sequence comprising SEQ ID NO: 13 and the encoded polypeptide sequence of SEQ ID NO: 14, it does not provide enablement for a DNA from any source or a DNA sequence that is 70%, 80%, 90% or 95% identical to SEQ ID

NO: 13. The Examiner further asserts that additional guidance is necessary with regard to which amino acids in the protein's sequence are tolerant of modification and which are conserved, along with detailed knowledge of the ways in which the protein's structure relates to its function. Applicants respectfully point out that the specification explicitly teaches, in Example 2, the isolation and characterization of the amorphadiene synthase encoding gene, the isolation of total RNA, the synthesis of cDNA and the construction of a cDNA library, using a farnesyl pyrophosphate (FPP) assay that involves the conversion of FPP into amorphadiene. Furthermore, the specification provides a detailed teaching, in Example 3, on how to functionally express a cDNA clone of the amorphadiene synthase encoding gene. Applicants submit, therefore, that the FPP assay described in the examples more than adequately enables one skilled in the art to isolate a DNA sequence that is at least 70% homologous to SEQ ID NO: 13 without undue experimentation and without the need for further teachings related to specific structural motifs necessary for unaltered protein activity/function.

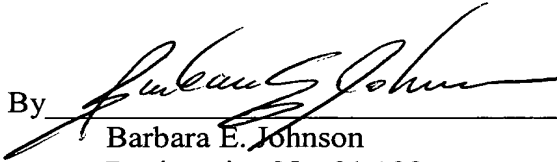
Claims 43-65 and 75-86 stand rejected under 35 U.S.C. 112, second paragraph, for purported indefiniteness. The Examiner asserts that the use of the term "biological activity" in the specification is equivalent to "enzymatic activity" and not to the accepted and general meaning of the term "biological activity," which is broader. Claim 43 has been amended to recite "enzymatic activity" instead of "biological activity," as suggested by the Examiner. The Examiner further asserts that claims 44-46 and 85-86 refer to Fig. 12 and DNA sequence, but that the claims are unclear because Fig. 12 shows both the DNA and the amino acid sequence. Claims 44-46 and 85-86 have been amended to recite "SEQ ID NO: 13" instead of "Fig. 12," as suggested by the Examiner. Finally, the Examiner asserts that in claim 56, the recitation "can be induced by elicitation" is unclear and suggests using either the term "induction" or "elicitation" to overcome this rejection. Claim 56 has been amended to recite only the term "elicited."

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For all the foregoing reasons, amended claims 43-46, 56 and 85-86 are patentable and in condition for allowance. Withdrawal of the asserted rejections and allowance of all pending claims 43-65, 69 and 71-74 are respectfully requested.

Respectfully submitted,

WEBB ZIESENHEIM LOGSDON
ORKIN & HANSON, P.C.

By 

Barbara E. Johnson
Registration No. 31,198
Attorney for Applicants
700 Koppers Building
436 Seventh Avenue
Pittsburgh, PA 15219-1818
Telephone: 412-471-8815
Facsimile: 412-471-4094
E-mail: webblaw@webblaw.com